



US 20130019461A1

(19) **United States**(12) **Patent Application Publication**
Rudmann et al.(10) **Pub. No.: US 2013/0019461 A1**(43) **Pub. Date: Jan. 24, 2013**(54) **OPTO-ELECTRONIC MODULES AND
METHODS OF MANUFACTURING THE
SAME AND APPLIANCES AND DEVICES
COMPRISING THE SAME**(52) **U.S. Cl. 29/592.1; 356/218**(57) **ABSTRACT**(75) **Inventors: Hartmut Rudmann, Jona (CH);
Markus Rossi, Jona (CH)**(73) **Assignee: HEPTAGON MICRO OPTICS PTE.
LTD., Singapore (SG)**(21) **Appl. No.: 13/553,290**(22) **Filed: Jul. 19, 2012****Related U.S. Application Data**(60) **Provisional application No. 61/509,346, filed on Jul.
19, 2011.****Publication Classification**(51) **Int. Cl.**
H05K 13/00 (2006.01)
G01J 1/42 (2006.01)

Manufacturing opto-electronic modules (1) includes providing a substrate wafer (PW) on which detecting members (D) are arranged; providing a spacer wafer (SW); providing an optics wafer (OW), the optics wafer comprising transparent portions (t) transparent for light generally detectable by the detecting members and at least one blocking portion (b) for substantially attenuating or blocking incident light generally detectable by the detecting members; and preparing a wafer stack (2) in which the spacer wafer (SW) is arranged between the substrate wafer (PW) and the optics wafer (OW) such that the detecting members (D) are arranged between the substrate wafer and the optics wafer. Emission members (E) for emitting light generally detectable by the detecting members (D) can be arranged on the substrate wafer (PW). Single modules (1) can be obtained by separating the wafer stack (2) into separate modules.

